State of California
Air Resources Board
MLD/ECCB-057 (04/2013 Updated)

Treat source of information as confidential:
☐ **Yes** ☐ **No**

Updated Manufacturer Costs for Compliance with ARB's Proposed OHRV Evaporative Regulation and Test Procedures

April 2013

Assistance requested:
Air Resources Board (ARB) staff has recently made amendments to the proposed evaporative emission standards for Off-Highway Recreational Vehicles (OHRV) in an attempt to reduce the testing cost for manufacturers. Simplified versions of the regulation and test procedure are attached. They summarize the current draft regulation and test procedure posted on the ARB website: http://www.arb.ca.gov/msprog/offroad/orrec/orrec.htm. The summary documents are not intended to replace any regulatory items, but merely serve as an aid when completing this form.

OHRV Manufacturers are encouraged to complete the following table, as applicable, to estimate the incremental and capital manufacturer costs in 2013 U.S. dollars ($) associated with the revised proposed draft regulation and test procedure. In order to integrate stakeholder cost estimates into the rulemaking support documents ARB staff must receive cost estimates no later than April 29, 2013.

Please return by April 29, 2013	
Mail: Pippin Mader, ARB/MLD P.O. Box 2815 Sacramento, CA 95812	
Fax: (916) 322-2444 Attn: P. Mader	**Email:** pmader@arb.ca.gov

Manufacturer Information:

Manufacturer Name: _____

Contact Name: _____ Telephone: _____ Email: _____

Vehicle Production:

What is the average time, in model years, between evaporative family re-design? _____

What percentage of your current California OHRV fleet already meets the proposed standards? _____

Do you currently manufacture zero emission OHRVs?: ☐yes ☐ no What percent of California fleet? % _____

Do you sell less than 50 OHRV units in California per model year? _____

For questions, please contact Pippin Mader at (916) 322-8930 or by email pmader@arb.ca.gov.

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The cost estimates in 2013$ provided below are based on building OHRVs designed to comply with ARB's proposed evaporative standards. These vehicles will be distributed to the following market: ☐California only ☐50 state

Instructions: Estimate the cost increase per model year to design current CA compliant vehicles to meet the proposed OHRV evaporative standards. Rows can be added, as needed, to accommodate additional evaporative families.

	Evaporative Family Displacement Range (cc)	$ Incremental Costs per *Vehicle* (cost of equipment needed to meet the proposed standards)					$ Capital Costs per *Evaporative Family Life*		MY2018 Projected Vehicle Sales in California per *Evaporative Family*
		Reduced Permeation Fuel Hose[1]	Reduced Permeation Fuel Tank[1]	Carbon Canister / Pressure Relief Valve	Fuel Management	Other Control Components[2]	Vehicle Re-Design[2]	Testing and Certification	
Example	ATV: 51cc – 249cc	$2.5	$5.00	$20.00	$150.00	$2.50	$100,000.00	$50,000.00	5000
ATV Evaporative Families									
Motorcycle Evaporative Families									
Misc. Evap families									

[1] A cost should only be estimated for the fuel hose/tank if a lower permeation is needed to meet the standard beyond current federal evaporative requirements.
[2] Please provide an estimate and description of any additional costs incurred by designing vehicles to comply with the proposed evaporative standards.

For questions, please contact Pippin Mader at (916) 322-8930 or by email pmader@arb.ca.gov.

Short Summary of the OHRV Evaporative Emission Regulation*

Applicability- [§2418(a)]
Applies to Off-highway recreational vehicles (OHRV) including gasoline fueled off-road motorcycles, all-terrain vehicles, off-road sport vehicles, off-road utility vehicles, and sand cars. Zero emission OHRV may be certified to receive credits, but are not required to perform testing.

Phase-in Period [§2418(b)(2)]
Phased-in over a four year period beginning in model year 2018 using the following calculation: [(MY2018+MY2019+MY2020+MY2021)/4 X100]≥75%

Evaporative Emission Performance Standards [§2418(b)(1)(A)]
OHRV must meet a 1.0 g TOG diurnal standard (per test sequence) and have no visible liquid leakage during a fuel system leakage tip test. The diurnal standard can be demonstrated by performing one of the two following tests:

1. 72 hour diurnal
2. 24 hour diurnal plus calculated vented emissions (option includes a pressure relief valve exemption)

All-Terrain Vehicle Filler Neck Compatibility Standard [§2418(b)(1)(B)]
All-terrain vehicles with fuel tanks that are re-designed beginning in model year 2018, with a nominal capacity of greater than 3.5 gallons must meet filler pipe sealing surface requirements of Figure 1 of the International Standards Organization 13331:1995(E).

Small-Volume Manufacturer Evaporative Emission Design Standard [§2418(c)]
OHRV manufacturers that produce less than 50 vehicles per year for three consecutive calendar years may certify using design-based standards. OHRV must have fuel injection and an actively purged carbon canister with a 1.0 g/l working capacity, perform a tip-test, and meet permeation standards for the fuel tank (1.5 g/m^2/day @ 28°C (82°F)) and fuel hose (5.0 g/m^2/day @ 35°C (95°F)).

Advanced Fuel System Credits [§2418(f)]
An OHRV manufacturer may use credits generated from certification values that are below the applicable performance standard, or from zero emission OHRV to offset higher emitting evaporative families. Zero emission vehicles are awarded credits in the amount of 75% of the diurnal standard. All credits must be used in the same model year, may not be sold or traded, and cannot be used for evaporative families that emit over 300% of the performance standard.

Warranty Period [§ 2419.2]
The warranty period covers a period of use over 30 months, or 2500 miles, or 250 hours, whichever comes first, except for evaporative components over $200 including labor, which are covered for 60 months, or 5000 miles, or 500 hours.

Tampering [§ 2419.5(f)]
All evaporative emission control systems must be installed in such a way that they are resistant to tampering or removal. All off-road motorcycles with carbon canisters installed outside of the cross sectional profile, or clearly visible on all other OHRVs, must be mounted so that non-conventional tools are required to remove the canister and the vapor line connection to the canister.

* Not intended to replace the proposed OHRV regulatory documents posted: http://www.arb.ca.gov/msprog/offroad/orrec/orrec.htm.

Short Summary of TP-933 - Test Procedure for Determining Evaporative Emissions from Off-Highway Recreational Vehicles*

Overview

TP-933 is a test procedure that is used to measure diurnal evaporative emissions from Off-highway recreational vehicles (OHRV).

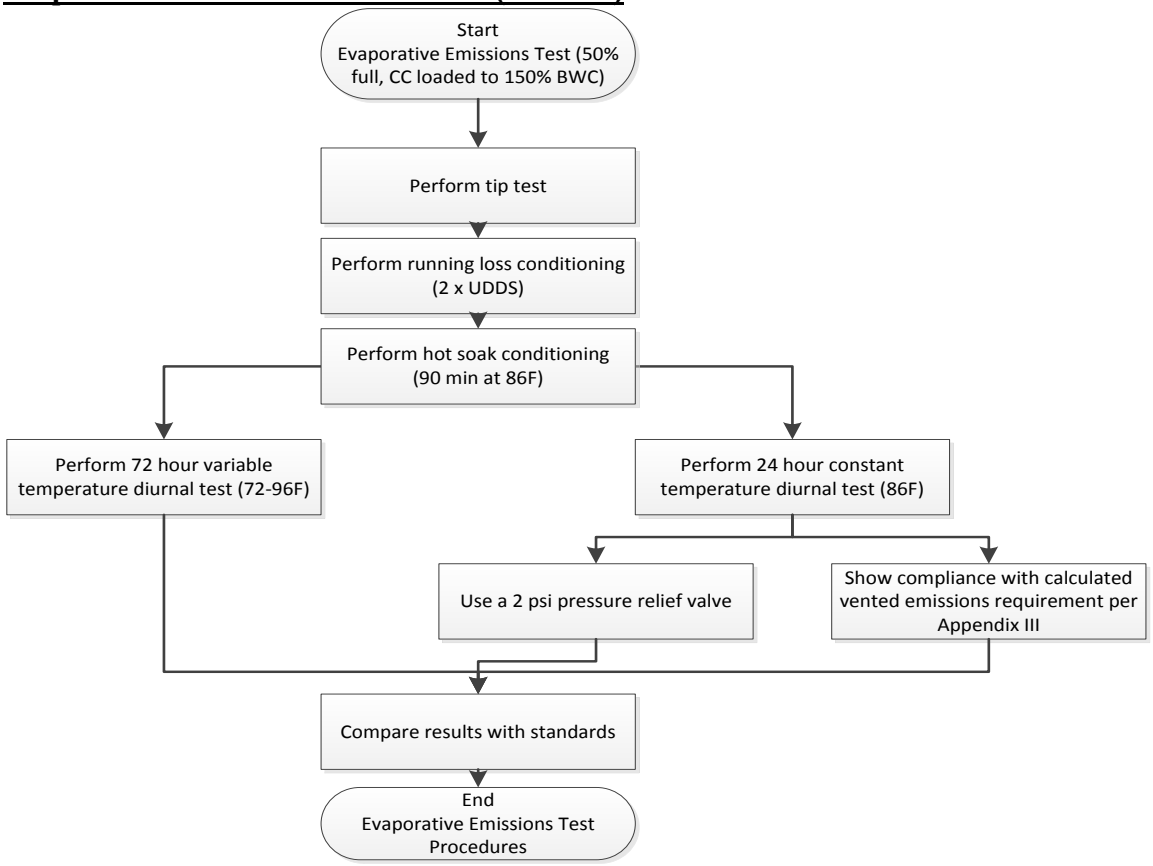
Durability Testing (section 4)

Vehicle must show the evaporative emissions components are durable enough to control emissions for their full useful life. This includes remaining mechanically intact in environments with dust, vibration, heat, UV, and ozone. This also includes protecting the carbon canister from contamination by liquid fuel

Evaporative Emissions System Preconditioning (section 5)

All fuel system components that permeate must be soaked for the equivalent of 3,360 hours at a temperature between 68ºF and 86ºF. The carbon canister has to be conditioned and loaded to 1.5 times the nominal butane working capacity before the test.

Evaporative Emissions Test Procedure (section 6)



Appendix

Appendix A – Calculations: Evaporative Emissions
Appendix B - Calculation Method for demonstrating the adequacies of the Vented Evaporative Emissions system
Appendix C – Motorcycle Variable Speed Cooling Blower

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http://www.arb.ca.gov/msprog/offroad/orrec/orrec.htm.